

STRENGTH CLASS 300 MPA

BASIC STEEL GRADE 10 as per GOST 1050

MECHANICAL PROPERTIES

Steel grade	Standard	Thickness, mm	Ultimate strength, MPa (N/mm ²)	Yield strength, MPa (N/mm ²)	Relative elongation, %, min	Mandrel diameter at 180° bending
10	GOST 16523	1.5-3.9	300-480	/	23	1.0a
10	GOST 1577	4.0-14.0	≥ 290		32	0.5a
30	ASTM A 1011	1.45-1.59	≥ 340	≥ 205	21	1.0a
		1.60-2.49			24	
		2.50-5.99			25	
	ASTM A 1018	6.00-8.00			22	/
		8.01-14.00			17	
B	ASTM A 283	6.00-8.00	≥ 345-450	≥ 185	28	/
		8.01-14.00			25	
1010	SAEJ403	1.45-14.00	/	/	/	/
1010	ASTM A 830	6.00-14.00	/	/	/	/
SPHT2	JIS G 3132	1.8-2.99	≥ 343	/	27	1.0a
		3.00-5.99			30	1.5a
		6.00-13.00			32	1.5a

/ – parameter is not regulated by the standard

o – as agreed by the parties

a – rolled product thickness

Steel with customized mechanical properties is available upon request.

TOLERANCES FOR DIMENSIONS AND SHAPE OF ROLLED PRODUCTS

Standard for specification	GOST 16523 GOST 1577	SAEJ403 ASTM A 1011 ASTM A 1018 ASTM A 830	JIS G 3132
Standard for product mix, geometrical dimensions and tolerances	GOST 19903	ASTM A 568 ASTM A 635	JIS G 3132 JIS G 3193

THICKNESS/WIDTH RATIO FOR ROLLED PRODUCTS

Thickness, mm	Strip width, mm														
	900	1,000	1,100	1,200	1,250	1,300	1,350	1,400	1,450	1,500	1,550	1,600	1,650	1,700	1,850
1.45-1.99															
2.00-2.49															
2.50-2.99															
3.00-3.49															
3.50-3.99															
> 4.00															

Rolled products with customized properties, including thickness/width ratio, are available upon request.

STRENGTH CLASS 350 MPA

BASIC STEEL GRADE

St2sp (Ст2сп) as per GOST 380

MECHANICAL PROPERTIES

Steel grade	Standard	Thickness, mm	Ultimate strength, MPa (N/mm ²)	Yield strength, MPa (N/mm ²)	Relative elongation, %, min	Mandrel diameter at 180° bending	Impact energy, J, min		
Ст2сп	GOST 16523	1.5-3.9	300-480	/	23	1.0a	/		
	GOST 14637	4.0-14.0	330-480	≥ 225	32	1.5a	/		
S235JR, S235JRC	EN 10025:2	1.45-1.50	360-510	≥ 235	16	**	/		
		1.51-2.00			17				
		2.01-2.50			18				
		2.51-2.99			19				
		3.00-9.99			24			27 (+20 °C)*	
		10.00-15.00							
S235J0, S235J0C, S235J0W	EN 10025:2	1.45-1.50	360-510	≥ 235	16	**	/		
		1.51-2.00			17				
		2.01-2.50			18				
		2.51-2.99			19				
		3.00-9.99			24			27 (0 °C)*	
		10.00-15.00							
S235J2, S235J2C, S235J2W, S235J2WP	EN 10025:2	1.45-1.50	360-510	≥ 235	16	**	/		
		1.51-2.00			17				
		2.01-2.50			18				
		2.51-2.99			19				
		3.00-9.99			24			27 (-20 °C)*	
		10.00-15.00							
33	ASTM A 1011	1.45-1.60	≥ 360	≥ 230	18	1.0a	/		
		1.61-2.50			22				
		2.51-6.00			23				
	ASTM A 1018	4.50-8.00			16			1.0a	/
		8.01-14.00			22				
1012	SAEJ403	1.45-14.00	/	/	/	/	/		

/ – parameter is not regulated by the standard

a – rolled product thickness

* impact energy for sample width over 10 mm

** depending on rolled product thickness

Steel with customized mechanical properties is available upon request.

TOLERANCES FOR DIMENSIONS AND SHAPE OF ROLLED PRODUCTS

Standard for specification	GOST 16523 GOST 14637	EN 10025	ASTM A 1011 SAE J403	ASTM A 1018
Standard for product mix, geometrical dimensions and tolerances	GOST 19903	EN 10051 EN 10029	ASTM A 568	ASTM A 635

THICKNESS/WIDTH RATIO FOR ROLLED PRODUCTS

Thickness, mm	Strip width, mm														
	900	1,000	1,100	1,200	1,250	1,300	1,350	1,400	1,450	1,500	1,550	1,600	1,650	1,700	1,850
1.45-1.99															
2.00-2.49															
2.50-2.99															
3.00-3.49															
3.50-3.99															
> 4.00															

Rolled products with customized properties, including thickness/width ratio, are available upon request.

STRENGTH CLASS 400 MPA

BASIC STEEL GRADE

St3sp (Ст3сп) as per GOST 380

MECHANICAL PROPERTIES

Steel grade	Standard	Thickness, mm	Ultimate strength, MPa (N/mm ²)	Yield strength, MPa (N/mm ²)	Relative elongation, %, min	Mandrel diameter at 180° bending	Impact energy, J, min
St3sp (Ст3сп)	GOST 16523	1.8-2.0	360-530	/	20	1.0a	/
	GOST 16523	2.1-3.9	360-530	/	22	2.0a	/
	GOST 14637	4.0-14.0	370-480	/	26	1.5a	/
36 Type 1	ASTM A 1011	1.80-5.99	≥ 365	≥ 250	22	1.5a	/
36	ASTM A 1018	6.00-8.00	≥ 365	≥ 250	15	/	/
		8.01-14.00			21		
1015	ASTM A 659	1.80-5.99	/	/	/	2.0a	/
	ASTM A 830	6.00-14.00	/	/	/	/	/
1017	ASTM A 659	1.80-5.99	/	/	/	2.0a	/
SS400	JIS G 3101	1.80-5.00	400-510	≥ 245	21	1.5a	/
		5.01-14.0			17		
C	ASTM A 283	4.50-8.00	380-515	≥ 205	25	/	/
		8.01-14.00			22		
P265NB	EN 10120:2008	2.00-2.99	≥ 265	410-500	24	/	/
P310NB	EN 10120:2008	1.80-2.49	≥ 310	460-550	21	/	/
SG295	JIS G 3116:2013	2.00-2.99	≥ 295	≥ 440	26	1.5a	/

/ – parameter is not regulated by the standard

a – rolled product thickness

Steel with customized mechanical properties is available upon request.

TOLERANCES FOR DIMENSIONS AND SHAPE OF ROLLED PRODUCTS

Standard for specification	GOST 16523 GOST 14637	ASTM A 659 ASTM A 1011	ASTM A 1018	JIS G 3101	JIS G 3132
Standard for product mix, geometrical dimensions and tolerances	GOST 19903	ASTM A 568	ASTM A 635	JIS G 3193	JIS G 3132 JIS G 3193

THICKNESS/WIDTH RATIO FOR ROLLED PRODUCTS

Thickness, mm	Strip width, mm														
	900	1,000	1,100	1,200	1,250	1,300	1,350	1,400	1,450	1,500	1,550	1,600	1,650	1,700	1,850
1.45-1.99															
2.00-2.49															
2.50-2.99															
3.00-3.99															
> 4.00															

Rolled products with customized properties, including thickness/width ratio, are available upon request.

STRENGTH CLASS 430 MPA

BASIC STEEL GRADE 20 as per GOST 1050

MECHANICAL PROPERTIES

Steel grade	Standard	Thickness, mm	Ultimate strength, MPa (N/mm ²)	Yield strength, MPa (N/mm ²)	Relative elongation, %, min	Mandrel diameter at 180° bending	Impact energy, J, min	
20, 20ps (20nc)	GOST 16523	1.8-2.0	350-500	/	22	0a	/	
	GOST 16523	2.1-3.9	350-500	/	23	1.0a	/	
	GOST 1577	4.0-14.0	≥ 370	/	28	1.0a	/	
	GOST 4041	4.0-12.0	340-490	/	28, 24	a	/	
S275JR, S275JRC	EN 10025:2	1.80-2.00	430-580	≥ 275	15	**	/	
		2.01-2.50			16			
		2.51-2.99			17			
		3.00-9.99	410-560		21			27 (+20)*
		10.00-14.00						
S275J0, S275J0C	EN 10025:2	1.80-2.00	430-580	≥ 275	15	**	/	
		2.01-2.50			16			
		2.51-2.99			17			
		3.00-9.99	410-560		21			27 (0)*
		10.00-14.00						
S275J2, S275J2C	EN 10025:2	1.80-2.00	430-580	≥ 275	15	**	/	
		2.01-2.50			16			
		2.51-2.99			17			
		3.00-9.99	410-560		21			27 (-20)*
		10.00-14.00						
40	ASTM A 1011	1.8-4.45	≥ 380	≥ 275	21	2.0a	/	
	ASTM A 1018	4.50-8.00	≥ 380	≥ 275	19	/	/	
		8.00-14.0			14	/	/	
1020	ASTM A 659	1.80-4.45	/	/	/	2.0a	/	
	ASTM A 635 ASTM A 830	4.50-14.0				/		
SPHT3	JIS G 3132	1.80-2.99	≥ 412	/	22	1.5a	/	
		3.00-5.99			25	2.0a		
		6.00-13.00			27			
-	ASTM A 36	4.5-8.00	400-550	≥ 250	23	/	/	
		8.01-16.00			20			

/ – parameter is not regulated by the standard

a – rolled product thickness

* impact energy for sample width over 10 mm

** depending on rolled product thickness

Steel with customized mechanical properties is available upon request.

TOLERANCES FOR DIMENSIONS AND SHAPE OF ROLLED PRODUCTS

Standard for specification	GOST 16523 GOST 14637	EN 10025	ASTM A 659 ASTM A 1011 ASTM A 659	ASTM A 635 ASTM A 1018
Standard for product mix, geometrical dimensions and tolerances	GOST 19903	EN 10051 EN 10029	ASTM A 568	ASTM A 635

THICKNESS/WIDTH RATIO FOR ROLLED PRODUCTS

Thickness, mm	Strip width, mm														
	900	1,000	1,100	1,200	1,250	1,300	1,350	1,400	1,450	1,500	1,550	1,600	1,650	1,700	1,850
1.45-1.99															
2.00-2.49															
2.50-2.99															
3.00-3.99															
> 4.00															

Rolled products with customized properties, including thickness/width ratio, are available upon request.

STRENGTH CLASS 450 MPA

BASIC STEEL GRADE

St3Gsp (Ст3Гсп) as per GOST 380

MECHANICAL PROPERTIES

Steel grade	Standard	Thickness, mm	Ultimate strength, MPa (N/mm ²)	Yield strength, MPa (N/mm ²)	Relative elongation, %, min	Mandrel diameter at 180° bending	Impact energy, J, min
St3Gsp (Ст3Гсп)	GOST 380*	2.0-3.9	/	/	/	/	/
	GOST 14637	4.0-14.0	390-570	255	23	1.5a	/
45	ASTM A 1011	1.80-2.49	≥ 410	≥ 310	18	2.0a	/
		2.50-6.00					
P310NB	EN 10120	1.80-2.49	460-550	≥ 310	21	/	/

* only chemical composition
/ – parameter is not regulated by the standard
a – rolled product thickness

At the customer's request, hot-rolled steel with drawing can be supplied with agreed mechanical properties.

TOLERANCES FOR DIMENSIONS AND SHAPE OF ROLLED PRODUCTS

Standard for specification	GOST 380 GOST 14637	ASTM A 1011
Standard for product mix, geometrical dimensions and tolerances	GOST 19903	ASTM A 568

THICKNESS/WIDTH RATIO FOR ROLLED PRODUCTS

Thickness, mm	Strip width, mm														
	900	1,000	1,100	1,200	1,250	1,300	1,350	1,400	1,450	1,500	1,550	1,600	1,650	1,700	1,850
1.50-1.79															
1.80-2.99															
3.00-3.99															
4.00-4.99															
5.00-5.99															
> 6.00															

Rolled products with customized properties, including thickness/width ratio, are available upon request.

STRENGTH CLASS 500 MPA

BASIC STEEL GRADE 17GS (17ГC)

MECHANICAL PROPERTIES

Steel grade	Standard	Thickness, mm	Ultimate strength, MPa (N/mm ²)	Yield strength, MPa (N/mm ²)	Relative elongation, %, min	Mandrel diameter at 180° bending	Impact energy, J, min
17GS (17ГC)	GOST 17066	3.0-3.9	≥ 510	/	19	2.0a	/
	GOST 19281	4.0-14.0	≥ 490	≥ 345	21	2.0a	0
09G2S (09Г2C)	GOST 17066	3.0-3.9	≥ 510	/	19	2.0a	/
	GOST 19281	4.0-14.0	≥ 490	≥ 345	21	2.0a	0
S355JR, S355JRC	EN 10025:2	1.50	510-680	≥ 355	13	**	/
		1.51-2.00			14		
		2.01-2.50			15		
		2.51-2.99			16		
		3.00-15.00	470-630	20	27 (+20)*		
S355J0, S355J0C	EN 10025:2	1.50	510-680	≥ 355	13	**	/
		1.51-2.00			14		
		2.01-2.50			15		
		2.51-2.99			16		
		3.00-15.00	470-630	20	27 (0)*		
S355J2, S355J2C, S355J2W	EN 10025:2	1.50	510-680	≥ 355	13	**	/
		1.51-2.00			14		
		2.01-2.50			15		
		2.51-2.99			16		
		3.00-15.00	470-630	20	27 (-20)*		
50	ASTM A 1011	3.0-5.99	≥ 450	≥ 345	17	2.5a	/
55	ASTM A 1011	3.0-5.99	≥ 480	≥ 380	15	3.0a	/
SS490	JIS G 3101	1.50-5.00	490-610	≥ 285	19	2.0a	/
		5.01-15.00			15		/

/ – parameter is not regulated by the standard

a – rolled product thickness

0 – as agreed by the parties

** depending on rolled product thickness

* minimum impact energy values depend on the sample width

Steel with customized mechanical properties is available upon request.

TOLERANCES FOR DIMENSIONS AND SHAPE OF ROLLED PRODUCTS

Standard for specification	GOST 17066 GOST 19281	EN 10025	ASTM A 1011	JIS G 3101
Standard for product mix, geometrical dimensions and tolerances	GOST 19903	EN 10051 EN 10029	ASTM A 568	JIS G 3193

THICKNESS/WIDTH RATIO FOR ROLLED PRODUCTS

Thickness, mm	Strip width, mm														
	900	1,000	1,100	1,200	1,250	1,300	1,350	1,400	1,450	1,500	1,550	1,600	1,650	1,700	1,850
1.50-1.79															
1.80-2.99															
3.00-3.99															
4.00-4.99															
5.00-5.99															
> 6.00															

Rolled products with customized properties, including thickness/width ratio, are available upon request.